

**ABSTRACT OF THE DISCLOSURE**

Methods are provided for operating a mobile satellite telecommunications system, as is a system that operates in accordance with the methods. A first method has steps of providing at least one user terminal, at least one satellite in earth orbit and at least one gateway bidirectionally coupled to a data communications network and, responsive to applications, selecting with the user terminal individual ones of a plurality of Quality of Service (QoS) modes for servicing different application requirements. The method further includes communicating a request for a selected one of the QoS modes at least to the gateway. Another method operates in response to stored satellite ephemeris information for selecting a path through the satellite constellation to a destination gateway for routing a communication to or from the data communication network and the user terminal, and for transmitting a description of the selected path from the user terminal to at least one of the constellation of satellites.. Another method operates so as to reduce an amount of information contained within a packet header after transmitting a first packet to at least one satellite of the constellation of satellites. Preferably the packet header of the first packet contains information that is descriptive of at least an identification of a source address and a destination address of the packet, and a connection identifier identifying a communication connection to which the packet belongs, whereas headers of subsequent packets of the communication connection contain only the connection identifier. The method further extracts and stores the information from the header of the first packet in the satellites, and routes subsequent packets based on the stored information and on the connection identifier. The method further expands the subsequently transmitted packet headers to contain the stored information prior to being transmitted to the data communication network.